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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,006	09/22/2003	Tetsuya Shiozaki	Q77349	5832
23373	7590	06/14/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			NWAONICHA, CHUKWUMA O	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/665,006	<b>Applicant(s)</b> SHIOZAKI ET AL.	
	<b>Examiner</b> Chukwuma O. Nwaonicha	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

*nd*

## **DETAILED ACTION**

### ***Current Status***

1. This action is responsive to Applicants' amendment of 5 April 2005.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1-5 are pending.

### ***Claim Rejections - 35 USC § 102***

The rejection of **claim 1, 2, 4 and 5** under 35 U.S.C 102, as being anticipated by Hunt et al., {US 2,776,996} set forth in the previous Office Action of 1/6/05 is withdrawn in favor of the new rejection.

### ***Claim Rejections - 35 USC § 102***

The rejection of **claim 3** under 35 U.S.C 102, as being anticipated by GB 1,166,961 set forth in the previous Office Action of 1/6/05 is withdrawn in favor of the new rejection.

### ***New Rejections***

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunt et al., {US 2,776,996}.

Applicants claim a method for producing a 3-methylthiopropional, the method comprising the step of supplying an acrolein and a methyl mercaptan together or sequentially with an acidic compound and a basic compound into a reaction system to react the acrolein with the methyl mercaptan, wherein the basic compound is used in an amount of about 0.3 mol or less per mole of the acidic compound.

Applicants claim a method for producing a 3-methylthiopropional, the method comprising the step of supplying an acrolein and a methyl mercaptan together or sequentially with an acidic compound and a basic compound into a reaction system to react the acrolein with the methyl mercaptan, wherein the basic compound is used in an amount of about 0.3 mol or less per mole of the acidic compound.

Hunt et al. teach an improved process for the manufacturing of beta-methylmercapto-propionaldehyde. The process involves the reaction of acrolein and a methyl mercaptan in the presence of acid-base catalyst. Hunt et al. teach a process wherein the reactants and the catalyst are added in different order as shown below.

The acid may be added to the acrolein and then fed together therewith into the methyl mercaptan-nitrogenous base mixture. Or the acid may be entered first into the mercaptan-base mixture, into which the acrolein is then fed. Or the acrolein and methyl mercaptan may first be mixed together, the acid added, and then the nitrogenous base may be fed in. Or again, the methyl mercaptan may be fed into a mixture of the acrolein, acid and base.

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Additionally, Hunt et al. teach the process wherein the base in excess of the acid as exemplified in column 6, example 6 and 7. The above anticipates the process recited in the rejected claims within the meaning of section 102.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 1,166,961.

GB 1,166,961 teaches a process wherein the base catalyst (pyridine) and acid catalyst (acetic acid) are previously mixed before reacting with the acrolein and the mercaptan compound and a reaction that involves a continuous process. See page 4, lines 40-45. GB 1,166,961 also teaches the process wherein the base is in excess of the acid as exemplified in page 4, example 1. The above anticipates the process recited in the rejected claims within the meaning of section 102.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims** 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al., {US 2,776,996} in view of GB 1,166,961.

Applicants claim a method for producing a 3-methylthiopropional, the method comprising the step of supplying an acrolein and a methyl mercaptan together or sequentially with an acidic compound and a basic compound into a reaction system to react the acrolein with the methyl mercaptan, wherein the basic compound is used in an amount of about 0.3 mol or less per mole of the acidic compound; wherein all the other variables are as defined in the claim.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Hunt et al. teach an improved process for the manufacturing of beta-methylmercapto-propionaldehyde. The process involves the reaction of acrolein and a methyl mercaptan in the presence of acid-base catalyst as shown below. Furthermore, Hunt et al. teach the process wherein the base is in excess of the acid as exemplified in column 6, example 6 and 7.

Hunt et al. also teach a process wherein the reactants and the catalyst are added in different order. See column 2, lines 17-24.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)**

Hunt et al. process for producing a 3-methylthiopropional differs from the instantly claimed method for producing a 3-methylthiopropional in that Hunt does not teach all the limitations of the reaction process, in particular, a process wherein the base catalyst and

acid catalyst are previously mixed before reacting with the acrolein and the mercaptan compound.

However, GB 1,166,961 teaches a process wherein the base catalyst (pyridine) and acid catalyst (acetic acid) are previously mixed before reacting with the acrolein and the mercaptan compound, and a reaction that involves a continuous process. See page 4, lines 40-45. GB 1,166,961 also teaches the process wherein the base is in excess of the acid as exemplified in page 4, example 1.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P. §2142-2143)**

The instant claimed method for producing a 3-methylthiopropional would therefore have been suggested to one of ordinary skill because one wishing to obtain 3-methylthiopropional is taught to select the processes of Hunt et al. and GB 1,166,961. One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by reacting an acrolein and a methyl mercaptan with an acidic compound and a basic compound to arrive at the instantly claimed process. Said person would have been motivated to practice the teaching of the references cited because they demonstrate that the process can be varied as desired. Furthermore, the Examiner notes that the variation of reactants is a common laboratory technique for process optimization and for economic factors. Thus, the variation of the acid/base concentration is not a patentable distinction because Hunt et al. and GB 1,166,961 teach the elements of the claimed invention with sufficient guidance, particularity, and


with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621



**PAULA ZUCKER, Ph.D.**  
**PRIMARY EXAMINER**



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